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SMART AUTO WIRELESS DISPLAY RECONNECTION METHOD

HP INC

Smart Auto Wireless Display Reconnection Method

Abstract: Source and sink devices of an unexpectedly terminated wireless connection monitor the RSSI characteristic of a wireless interface. When the RSSI (Received Signal Strength Indicator) exceeds a threshold which indicates that the source and sink devices are close enough to reestablish the connection, the background daemons automatically trigger the wireless display reconnection.

This disclosure relates to the field of wireless display technology.

A technique is disclosed that automatically reconnects source and sink wireless display devices in case of an unexpected disconnection.

Wireless Display technology allows wireless video (and in some cases audio) streaming from a source device (for example, a laptop, tablet, or smartphone) to a sink device having an external display (for example, a projector, monitor, TV, or another computing device). A wireless connection is made between the source and sink devices over Bluetooth, WiFi, or similar communications schemes. However, in some cases an unexpected disconnection between the two devices may occur. Presently, there is no automatic reconnection feature for an unexpected disconnection. As a result, the user must manually reestablish the connection every time.

According to the present disclosure, and as understood with reference to the Figure, upon an unexpected disconnection, background daemons in the source 10 and sink 20 devices monitor characteristics of a Bluetooth and/or WiFi interface. One of these characteristics, the Received Signal Strength Indicator (RSSI), indicates the proximity of the source 10 and sink 20 devices to each other. Once the RSSI (Received Signal Strength Indicator) exceeds a threshold which indicates that the source end is close enough to the sink end to make a connection, the background daemons automatically trigger the wireless display connection.

In an example method, a wireless display connection 30 is made. Then an unexpected wireless display disconnection 40 occurs.

Following the unexpected disconnection 40, at 50 the source device 10 sets its role to a Bluetooth peripheral, while the role of the sink device 30 becomes Bluetooth central. The source device 10 periodically reports RSSI information to the sink device 20. If the sink device 20 determines that RSSI exceeds the threshold, the sink daemon sends a request for a Wireless Display connection to the source device 10. The source daemon, upon receipt of the connection request, triggers a wireless reconnection of the source 10 and sink 20 devices.

In some alternatives, if the source device 10 fails to change its role to a Bluetooth peripheral and remains Bluetooth central, the daemon instead tells the sink device 20 to change its role to a Bluetooth peripheral. In this instance, the sink device 20 periodically reports RSSI information to the source device 10. If the source device 10 determines that RSSI exceeds the threshold, the source daemon triggers a wireless reconnection of the source device 10 to the sink device 20.

Wi-Fi provides a backup solution if Bluetooth was turned off or is otherwise not working. In this situation, at 60, the sink device 20 periodically reports RSSI information to the source device 10. If the source device 10 determines that RSSI exceeds the threshold, the source daemon sends a request for a Wireless Display connection to the sink device 20.

The sink device 20, upon receipt of the connection request, triggers a wireless reconnection of the source 10 and sink 20 devices.

The disclosed technique advantageously eliminates the need for the user to perform the manual steps needed to initiate a reconnection between the source and sink devices after an unexpected disconnection, and eliminates the time associated with these manual operations.

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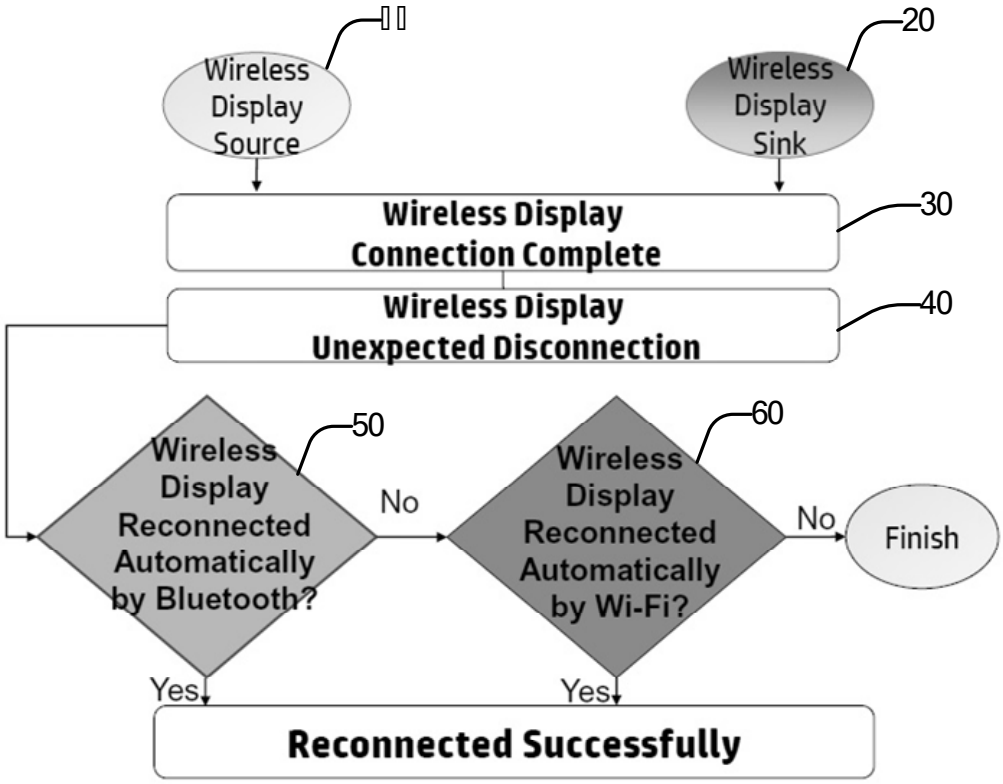
Wireless Display Source
Wireless Display Sink
20
Wireless Display Connection Complete
30
Wireless Display Unexpected Disconnection
40
Wireless Display Reconnected Automatically by Bluetooth?
50
No
Wireless Display Reconnected Automatically by Wi-Fi?
60
No
Finish
Yes
Yes
Reconnected Successfully